UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/830,065	04/23/2004	Akira Kiyomura	024536-0143	8742

22428 7590 09/07/2005		EXAMINER	
FOLEY AND LARDNER		KIRKLAND III, FREDDIE	
SUITE 500			
3000 K STREET NW		ART UNIT	PAPER NUMBER
WASHINGTON, DC 20007		2855	

DATE MAILED: 09/07/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

AK

Office Action Summary	Application No.	Applicant(s)
	10/830,065	KIYOMURA ET AL.
	Examiner	Art Unit
	Freddie Kirkland III	2855

-- *The MAILING DATE of this communication appears on the cover sheet with the correspondence address* --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE _3_ MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on _23 April 2004_.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) _1-19_ is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) _1-3,7,8,10-13,17 and 18_ is/are rejected.

7)☒ Claim(s) _4-6,9,14-16 and 19_ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on _23 April 2004_ is/are: a)☒ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☒ All b)☐ Some * c)☐ None of:

      1.☒ Certified copies of the priority documents have been received.

      2.☒ Certified copies of the priority documents have been received in Application No. _10/830,065_.

      3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _4/23/04, 7/12/04_.

4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .

5) ☐ Notice of Informal Patent Application (PTO-152)

6) ☐ Other: _____ .

DETAILED ACTION

Double Patenting

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 1-19 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-19 of copending Application No. 10/830,054. Although the conflicting claims are not identical, they are not patentably distinct from each other because the claims of the current application are met as set forth in application 10/830,054. The calculation section, as stated in the independent claims of the current application, calculates a correction value for correcting said threshold based on data indicating an average correlation between said diagnosis data and said threshold, to correct said threshold with said correction value. Calculating a correction value for correcting the threshold, as stated in the claims, is the same as repeatedly calculating the threshold value of the copending application 10/830,054.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1,3,7,10, 11,13, and 17 rejected under 35 U.S.C. 103(a) as being unpatentable over Wu et al. U.S. Patent 5,862,507 in view of Lehner et al. U.S. Patent 6,584,834.

With respect to claims 1 and 11, the Wu et al. reference teaches a misfire detection apparatus comprising: "an operating condition detector detecting engine operating conditions inclusive of an engine rotation speed (figure 1 crankshaft sensor 38, col.6 lines 54-67); and a calculating section (figure 1, ECU 50) that judges whether or not a misfire occurred, based on the engine rotation speed detected by said operating condition detector (col. 7 lines 26-40), to output a misfire judgment signal (col. 8 lines 25-29), wherein said calculating section: calculates diagnosis data indicating a variation of said engine rotation speed (figure 3 signal processing block 74, col. 8 lines 62-66, the signal processing block extracts the average and fluctuation from the engine speed signal) and also calculates a threshold based on said engine operating conditions (figure 3 dynamic threshold block 88, col. 10 lines 36-61 the threshold and decision block estimates normal and misfire information and generates a dynamic threshold for

misfire determination purposes), and judges whether or not a misfire occurred, based on the comparison between said diagnosis data and said threshold (col. 10 lines 58-61, comparison and decision block compares threshold to input which represents engine diagnosis data)."

But Wu et al. fails to teach a calculation section that "calculates a correction value for correcting said threshold based on data indicating an average correlation between said diagnosis data and said threshold, to correct said threshold with said correction value."

The Lehner et al. reference teaches a method for detecting engine misfires where a corrective value k is used to change the threshold based on engine operating data (col. 4-5 lines 51 – 6).

Accordingly, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have used the threshold correction method from the Lehner invention in the device of Wu et al. in order to make the misfire detection less sensitive to drive train fluctuations (Lehner et al. col. 4 line 62).

With respect to claims 2 and 12, the Wu et al. reference teaches a "calculating section calculates a ratio between an average value of said diagnosis data (averaged diagnosed data input into dynamic threshold and decision block 88 from signal processing block 74) and an average value of said threshold (the dynamic threshold is determined from averaged data, therefore since this process is continuously running the threshold is also averaged), as said data indicating the average correlation (the comparison and decision block in figure 7 gives a continuous comparison between threshold and averaged diagnosed data)."

With respect to claims 3 and 13, the Wu et al. reference teaches comparing the average diagnosed data and threshold values, met as set forth in claim 2, but fails to teaches a calculating "an average value of ratios between said diagnosis data and said threshold, as said data indicating the average correlation."

Nevertheless it would have been obvious to one of ordinary skill in the art at the time the invention was made to have averaged the ratios between the diagnosed data and thresholds because the modification would enhance system accuracy.

With respect to claims 7 and 17, the Wu et al. reference teaches a calculating section that "cancels the misfire judgment (Canceling a misfire signal and determining if a misfire occurred are equivalent), based on said data indicating the average correlation between said diagnosis data and said threshold (col. 10 lines 58-61)."

Nevertheless it would have been obvious to one of ordinary skill in the art at the time the invention was made to have cancel the misfire diagnosis based on diagnosed data in order to enhance system accuracy.

With respect to claim 10, the reference Wu et al. teaches a misfire detecting apparatus comprising: "means for detecting engine operating conditions inclusive of an engine rotation speed (crankshaft sensor 38); means for calculating diagnosis data indicating a variation of said engine rotation speed (ECU 50); means for calculating a threshold based on said engine operating conditions (Dynamic threshold and decision block 88); means for judging whether or not a misfire occurred, based on the comparison between said diagnosis data and said threshold (Dynamic threshold and decision block 88).

But fails to teach "means for calculating data indicating an average correlation between said diagnosis data and said threshold; and means for canceling the misfire judgment, based on a result of the comparison between said data indicating the average correlation and a threshold for cancellation judgment."

The Lehner et al. reference teaches a means for detecting engine misfires where a corrective value k is used to change the threshold based on engine operating data (col. 4-5 lines 51 – 6, figures 3a-3b).

Accordingly it would have been obvious to one of ordinary skill in the art at the time the invention was made to have used the means of calculating a correction value k

from the Lehner reference in the device of Wu et al. in order to make the misfire detection less sensitive to drive train fluctuations (Lehner et al. col. 4 line 62).

Claims 8 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wu et al. and Lehner et al. as applied to claims 1 and 11 above, and further in view of Aono et al. U.S. Patent 6,907,341.

With respect to claims 8 and 18, the Wu et al. and Lehner et al. references fails to disclose a "calculating section prohibits the cancellation of misfire judgment, when a misfire frequency during a period of time where said average correlation is obtained, is equal to or above a predetermined value."

The Aono et al. reference teaches a signal-processing means combined with judgment means that filter out misfire frequencies using two filters.

Accordingly it would have been obvious to one of ordinary skill in the art at the time the invention was made to have used the misfire frequency method from Aono et al. in the device of Wu et al. in order to accurately detects misfire even in cases where the vehicle is driven over a rough road surface and or in situation involving noise such as jolts of the vehicle body, by using two filters to extract the intended frequency components more effectively (Aono et al col. 2 lines 15-20).

Allowable Subject Matter

Claims 4-6,9,14-16, and 19 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.
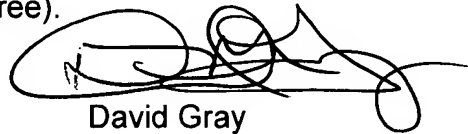
Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Freddie Kirkland III whose telephone number is 571-272-2232. The examiner can normally be reached on Monday through Friday 8am-5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Gray can be reached on 571-272-2119. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

David Gray

Primary Examiner

FKII
8/31/2005